IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1.   (Previously Presented)   An analyte screening system, comprising:

a sensor array comprising a plurality of different differentially responsive sensors;

a measuring device, connected to the sensor array;

a computer;

a data storage device in communication with the computer; and

a plurality of signal profiles from a plurality of standard samples, not including an analyte of interest, having a known specific activity, chemical or physical property or function stored on the data storage device;

the measuring device detecting a signal from each of the plurality of different differentially responsive sensors when the sensor array is contacted with the analyte of interest and the computer comprising instructions on a computer readable program for causing the computer to assemble the signals from each of the sensors in the array into a sensor array signal profile;

wherein the computer is operative to compare the sensor array signal profiles to the plurality of previously obtained signal profiles from the plurality of standard samples not including the analyte of interest, wherein the comparison of the sensor array signal profiles to the previously obtained signal profiles is indicative of a specific activity, chemical or physical property, or function of the analyte of interest.

2.   (Previously presented)   The system of claim 1, wherein the analyte comprises a chemical.

3.   (Previously presented)   The system of claim 2, wherein the chemical comprises a biochemical.

4.   (Previously presented)   The system of claim 3, wherein the biochemical is selected from the group consisting of a lipid, a hormone, a fatty acid, a nucleic acid, a polypeptide, and a carbohydrate.

5.   (Previously presented)   The system of claim 4, wherein the polypeptide is selected from the group consisting of an antibody, an enzyme, and a protein.

6.   (Previously presented)   The system of claim 5, wherein the antibody is a monoclonal antibody, polyclonal antibody, humanized antibody, or fragments thereof.

7.   (Previously presented)   The system of claim 5, wherein the enzyme is selected from the group consisting of lipases, esterases, proteases, glycosidases, glycosyl transferases, phosphatases, kinases, mono- and dioxygenases, haloperoxidases, lignin peroxidases, diarylpropane peroxidases, eposide hydrolases, nitrile hydrotases, nitrilases, transaminass, amidases, and acylases.

8. (Previously presented)   The system of claim 1, wherein the specific activity is selected form the group consisting of an enzymatic activity, a binding activity, an inhibitory activity, and a modulating activity.

9. (Previously presented)   The system of claim 1, wherein the signal profiles of the standard sample is derived from a library.

10. (Previously presented)   The system of claim 9, wherein the library is generated by a neural network.

11. (Previously presented)   The system of claim 1, wherein the different differentially responsive sensors change optically, electrically, magnetically, mechanically, physically, or a combination thereof.

12. (Previously presented)   The system of claim 1, wherein the different differentially responsive sensors are selected from the group consisting of crystalline colloidal array (CCA) containing sensors, metal oxide sensors, dye-impregnated polymers coated onto beads or optical fibers, bulk conducting organic polymers, capacitance sensors, chemically-sensitive resistor sensors, and combinations thereof.

13. (Previously presented)   The system of claim 12, wherein the chemically-sensitive resistor sensors are comprised of regions of a non-conductive material and regions of a conductive material compositionally different than the non-conductive

material, each resistor providing an electrical path through the regions of conductive

and non-conductive material, wherein interaction of the molecule with the resistor

provides a change in resistance in the resistor.

14.   (Previously presented)   The system of claim 1, wherein the chemical or

physical property is selected from the group consisting of side groups, charge,

hydrophobicity, polarity, molecular size or shape, and chirality.

15.   (Previously presented)   The system of claim 1, wherein the different

differentially responsive sensors are chemically sensitive resistors.

16.   (New) An analyte screening system, comprising:

a sensor array comprising a plurality of different differentially responsive

sensors;

a measuring device, connected to the sensor array;

a computer;

a data storage device in communication with the computer; and

a plurality of signal profiles from a plurality of standard samples, not including

an analyte of interest, having a known specific activity, chemical or physical property

or function stored on the data storage device;

the measuring device detecting a signal from each of the plurality of different

differentially responsive sensors when the sensor array is contacted with the analyte

of interest and the computer comprising instructions on a computer readable

program for causing the computer to assemble the signals from each of the sensors in the array into a sensor array signal profile;

wherein the computer is operative to compare the sensor array signal profiles to the plurality of previously obtained signal profiles from the plurality of standard samples not including the analyte of interest, wherein the comparison of the sensor array signal profiles to the previously obtained signal profiles is indicative of a specific activity, chemical or physical property, or function of the analyte of interest and

wherein the analyte is a chemical comprising an alkane, alkene, alkyne, diene, alicyclic hydrocarbon, arene, alcohol, ethers, ketones, aldehydes, cyclic hydrocarbons, carbonyls, carbanions, polynuclear aromatics and/or halide derivative.